



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/627,609	07/28/2003	In-De Ou	OUIN3001/EM	4280
23364	7590	05/25/2005	EXAMINER	
BACON & THOMAS, PLLC 625 SLATERS LANE FOURTH FLOOR ALEXANDRIA, VA 22314			DANG, PHUC T	
			ART UNIT	PAPER NUMBER
			2818	

DATE MAILED: 05/25/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/627,609

Applicant(s)

OU ET AL.

Examiner

PHUC T DANG

Art Unit

2818

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on amendment filed April 26, 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 and 18-28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 13-16 and 18-28 is/are allowed.
- 6) ☒ Claim(s) 1-5, 7-9, 11-12 is/are rejected.
- 7) ☒ Claim(s) 6 and 10 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

Art Unit: 2818

DETAILED ACTION

Amendment

1. Applicant's Amendment filed on April 26, 2005 has been considered.

In Amendment, Applicants cancel claim 17.

Claims 1-16 and 18-28 are currently pending in the application.

Priority

2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Rejections - 35 USC § 102

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 1-5, 7-9, and 11-12 are rejected under 35 U.S.C. 102 (e) as being anticipated by Lubert et al., hereinafter "Lubert" (U.S. Patent No. 6,618,940 B2).

Regarding claim 1, Lubert discloses a circuit substrate, comprising:

Art Unit: 2818

a board having a plurality of conductive trace layers (29, Fig. 9) and insulating layers (15 and 17, Fig. 9), and a via (5, Fig. 9) formed in the board;

a plurality of metal layers (29, Fig. 9) formed on an inner wall (9, Fig. 9) of the via, wherein each of the metal layers (29, Fig. 9) electrically connects to the corresponding conductive trace layer (29, Fig. 9) respectively; and

an insulator (11, Fig. 9) formed in the via (5, Fig. 9) to electrically isolate from each of the metal layers (29, Fig. 9).

Regarding claim 2, Lubert discloses further comprising a plurality of via lands (39, Fig. 11) disposed on the board and at the periphery of the via (5, Fig. 11).

Regarding claim 3, Lubert discloses wherein each of the via lands (39, Fig. 11) is disposed correspondingly to each of the metal layers (29, Fig. 11).

Regarding claim 4, Lubert discloses wherein the insulator (11, Fig. 11) is positioned between the metal layers (29, Fig. 11).

Regarding claim 5, Lubert discloses wherein the via is a through hole (5, Fig. 2).

Regarding claim 7, Lubert discloses wherein the via is a blind via [col. 3, lines 20-27].

Regarding claim 8, Lubert discloses wherein the material of the metal layers is copper [col. 5, lines 25-27].

Regarding claim 9, Lubert discloses the material of the insulator is epoxy [col. 7, lines 16-22].

Regarding claim 11, Lubert discloses wherein the board comprises a plurality of

Art Unit: 2818

insulating layers and conductive trace layers, and the insulating layers are interlaced with the conductive traces layers [Fig. 11].

Regarding claim 12, Lubert discloses wherein the via land is made of copper [col. 5, lines 25-27].

Allowable Subject Matter

5. The following is a statement of reason for the indication of allowable subject matter:

Claims 13-16 and 18-28 are allowed.

Claims 13-16 and 18-28 are considered to be allowed because the prior art does not suggest or teach a step of cutting the via to form a cutting street to separate the metal layers into the plurality of separated metal layers and filling an insulator in the via and the cutting street.

Claims 6, 10, 17, 21, and 27-28 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

None of the Prior Art made of records does not disclose the via is a buried via as cited in claims 6 and 17 and the material of the insulator is ink as cited in claim 10 and 21 and wherein cutting the via comprises photochemical reaction as cited in claim 27 and plasma etching as cited in claim 28.

Response to Arguments

6. Applicant's arguments filed April 26, 2005 have been fully considered but they are not persuasive.

Art Unit: 2818

Examiner agrees with Applicant's argues regarding to the independent claim 13 as discussed in the Allowed Subject Matter above.

In additions, Applicant argues that Lubert neither discloses nor teaches the right part and the left part of the metallized layers 29, covering on the internal wall 9 of the opening 5 is electrically isolated from each other. However, Applicants did not suggest this isolation limitation between the metallized layers before filling an insulator material formed in the hole as shown in the above claimed invention 1. Besides, Lubert only suggests an insulator formed in the hole, but dos not mention any isolation from each of the other metallized layers in the specification as Applicant's argued. However, Lubert discloses an dielectric material (col. 7, lines 45-64) is filling in the hole 5 as a function to protect the metallized layers . Then, they should be isolated each other as shown in Lubert's reference on lines 17-21 of page 8. Furthermore, in Fug. 4 of Lubert's reference the surfaces of the filled opening are above the metallized layers 29 which made the metallized layers isolated. Therefore, with respect to the suggestion or motivation in the Lubert's reference to one ordinary skill in the art to modify the above teaching of Lubert's reference for a purpose of protecting the metallized layer in the process..

7. THIS ACTION IS MADE FINAL. Applicant is reminded of extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is field within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the

Art Unit: 2818

THREE MONTHS shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136 (a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

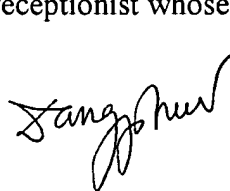
8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Phuc T. Dang whose telephone number is (571) 272-1776. The examiner can normally be reached on 8:00 am-5:00 pm.

9. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David C. Nelms can be reached on (571) 272-1787. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9306 for regular communications and After Final communications.

10. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

Phuc T. Dang

PD

A handwritten signature in black ink, appearing to read 'Phuc T. Dang', with a long, sweeping horizontal line extending to the right.

Primary Examiner

Art Unit 2818